

Call for proposals: RHIC Detector R&D

Proposals are solicited for R&D funds in support of detector technologies for the future physics program of the Relativistic Heavy Ion Collider at Brookhaven National Laboratory.

The first physics runs with the “baseline” RHIC detectors have been a major success in initiating the exploration of nuclear matter under extreme conditions in a new regime of high energy nucleus-nucleus collisions. Scientific planning is now underway to consider the long-term future of the RHIC program, with enhanced capabilities of machine and detectors allowing detailed studies of new phenomena through rare probes and perturbative QCD processes in high energy collisions of nucleus-nucleus, proton-nucleus, and spin-polarized proton beams. BNL, with the cognizance of the U.S. Department of Energy, is studying a plan to increase the collider luminosity by an ultimate factor of 40 by ~2010. This plan calls for significant upgrades of the RHIC detectors during the intervening years.

Detector upgrades to exploit the enhanced machine performance will require advances in the present state of technology in areas of tracking, particle identification, data acquisition, and trigger capability. These issues were discussed at a workshop entitled “R&D for Future Detectors and Upgrades” held at Brookhaven in November 2001. A summary of the workshop can be found on the web at www.star.bnl.gov/STAR/rhicworkshop/. An R&D program is called for, similar in scope and scale to that which preceded the initial round of RHIC detector construction. It is expected that dedicated detector R&D funding for RHIC will be made available over the next several years to facilitate the construction of major detector upgrades during the latter half of this decade.

In order to initiate this program, the BNL Physics Department is calling for proposals for R&D funding, beginning in FY 2003. These proposals should address long lead-time technology developments that are viewed as essential for the upgrade of the RHIC detectors, or the implementation of new detectors, over the remainder of this decade. Proposals should be submitted to Dr. Samuel Aronson, Chair, BNL Physics Department, by September 20, 2002.

BNL will incorporate these proposals into a single plan, including some shared R&D where appropriate, that will be forwarded to DOE on behalf of the RHIC community. Brookhaven expects to convene a Detector R&D Advisory Committee that will meet in October or November 2002 to review this plan and make recommendations for FY 2003 allocations. This committee would meet regularly, at least once per year, to monitor progress, review new proposals, and make recommendations for allocations in subsequent budget cycles.

Proposal Guidelines: It is understood that individual detector collaborations may be submitting proposals for several R&D projects. These should be submitted under a single umbrella document that serves to tie the proposed R&D to the physics goals and upgrade plans of the collaboration. The document should map out the R&D needs for the next 3 years (2003-2005). Each proposed R&D project should have a statement of its value for the future RHIC physics program, and a justification for the need and timeliness of the R&D. It should also include (to the extent possible at this stage) a budget estimate for labor, materials, travel, and subcontracts, an estimate of the schedule to carry out the work, and should list the principal investigators or groups who will carry out the work.